

SHALLOW SANDY LOAM OVER RED CLAY ON CALCRETE

General Description: *Sandy loam to sandy clay loam with variable rubble, over a red clay overlying calcrete at shallow depth*

Landform: Undulating rises and gently undulating flats

Substrate: Calcreted calcarenite (Bridgewater Formation)

Vegetation: Mallee



Type Site: Site No.: MM083

1:50,000 sheet: 6826-4 (Binnie)

Hundred: Coolinong

Annual rainfall: 440 mm

Sampling date: 1992

Landform: Upper slope of an undulating rise, 5% slope

Surface: Firm with 20-50% calcrete stone (60-200 mm)

Soil Description:

Depth (cm)	Description
0-8	Very dark greyish brown firm light sandy clay loam with weak granular structure and 20-50% calcrete fragments (60-200 mm). Abrupt to:
8-15	Reddish brown hard sandy medium clay with coarse columnar structure. Abrupt to:
15-22	Red hard medium clay with strong coarse angular blocky structure. Abrupt to:
22-32	Red hard medium clay with strong coarse angular blocky structure and 10-20% calcrete fragments (60-200 mm). Abrupt to:
32-50	Rubbly calcrete. Sharp to:
50-75	Laminar calcrete pan. Clear to:
75-120	Partially indurated very highly calcareous loamy sand with more than 50% hard calcrete nodules.



Classification: Haplic, Lithocalcic, Red Chromosol; thin, moderately gravelly, loamy / clayey, moderate

Summary of Properties

Drainage	Well drained. Soil rarely remains wet for more than a few days.
Fertility	Inherent fertility is moderate, as indicated by the exchangeable cation data. Regular phosphorus and nitrogen applications are needed. (phosphorus levels are high at sampling site). Zinc and copper concentrations are marginal. Manganese may be required for cereals. Organic carbon levels are very high.
pH	Alkaline throughout.
Rooting depth	50 cm in pit.
Barriers to root growth	
Physical:	The calcrete restricts downward root extension - depth to calcrete is critical.
Chemical:	There are no chemical barriers above the calcrete.
Water holding capacity	40 mm in root zone.
Seedling emergence:	Satisfactory but can be reduced by stones.
Workability:	Firm surface is easily worked, but stones interfere with and abrade equipment.
Erosion Potential	
Water:	Moderately low.
Wind:	Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	8.1	7.5	5	0.16	0.96	2.7	47	560	1.6	0.09	-	4.6	0.48	18.8	16.91	1.26	0.11	1.29	0.6
0-8	8.0	7.4	4	0.15	0.97	3	37	530	1.6	0.19	-	5.2	0.4	19.7	17.27	1.14	0.08	1.34	0.4
8-15	7.9	7.2	2	0.09	0.51	1.1	6	290	0.93	<0.05	-	1.1	<0.06	15.2	14.62	1.17	0.13	0.73	0.9
15-22	7.9	7.2	2	0.07	0.26	0.5	4	270	1	<0.05	-	0.2	<0.06	30.8	24.08	2.49	0.28	0.95	0.9
22-32	8.1	7.5	2	0.13	0.34	0.4	4	200	0.92	<0.05	-	0.3	<0.06	36.0	30.47	3.93	0.45	0.84	1.3
32-50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50-75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75-120	9.4	8.1	8.1	0.16	1.7	0.1	<2	<40	<0.40	0.07	-	0.49	<0.06	1.2	1.48	0.51	0.24	0.06	na

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.

CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.